

should be sown during the ideal sowing window (15 June) and supplied with optimum nitrogen dose (40 kg ha<sup>-1</sup>).

**Conflict of interest.** The authors declare that they have no conflict of interest.

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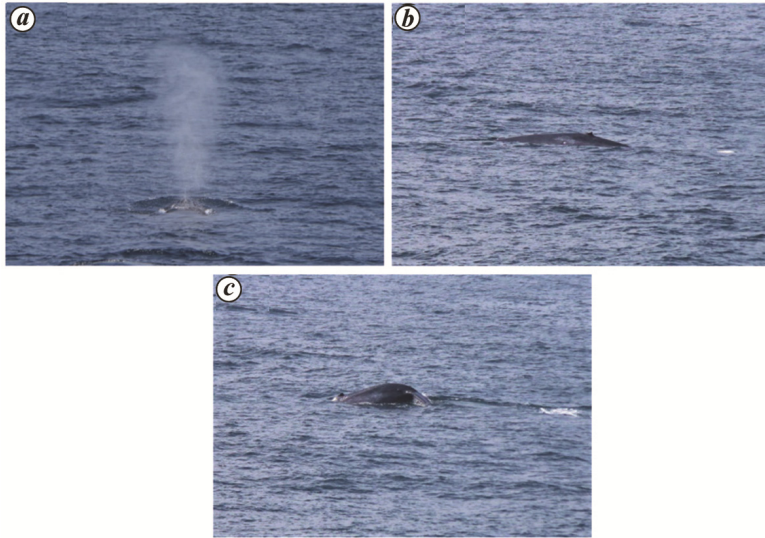
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## Live observation of great blue whale (*Balaenoptera musculus*) from northern Arabian Sea, off Gujarat, India

The great blue whale *Balaenoptera musculus* (Linnaeus, 1758) is the largest animal reported to exist on earth<sup>1,2</sup>. These migratory giants are distributed across major oceans of the world, except the Arctic, Mediterranean, Okhotsk and Bering Seas<sup>3</sup>. In the Indian Ocean, blue whales are only documented from the highly productive northern part<sup>4,5</sup>. The population and distribution pattern of blue whales are poorly understood<sup>5</sup> despite stranding-based information which confirms their presence from Bangladesh, Burma, India and Pakistan waters<sup>6</sup>. Here we report about the sighting of a blue whale from the northern Arabian Sea during the survey between 1 and 15 April 2018 on-board FORV *Sagar Sampada* involving 156 h. The continuous observation using Celestron 7 × 50 Cavalry binocular with GPS and a Nikon D750 camera revealed the presence of the great blue whale off the coast of Gujarat, India. A single individual was

sighted 390 km away from Gujarat coast (21°49.91'N, 067°58.29'E) on 3 April 2018, and identified in the field by its very high and broad spout. During the sighting, northerly wind (Beaufort scale 3) and 27°C sea surface temperature were recorded. Photographs were taken to compare them with the published literature<sup>7,8</sup>, to reconfirm the species identity. The key morphological characters of the blue whale include twin blowhole with a single ridge, spouting pattern and falcate dorsal fin (Figure 1). No other associated animals were found during the sighting and the gentle giant was cruising at an approximate speed of 4 kn. An average dive time of approximately 5 sec was observed as its diving frequency. With seasonally changing primary producers such as plankton blooms and nutrient-rich deep water close to the shore, the northern Arabian Sea appears to be a cetacean hotspot<sup>9</sup>. Blue whales are known to be present during the mon-

soon months in the southwest of India, west coast of Sri Lanka and the Maldivian waters<sup>4,5,10</sup>. In Indian waters, blue whale strandings have been reported periodically along Gujarat, Maharashtra and Karnataka coasts and the Lakshadweep Islands<sup>11</sup>. In the absence of exclusive periodic scientific cruises in the Indian waters, Centre for Marine Living Resources and Ecology during 2001–13 had funded a marine mammal programme to Central Marine Fisheries Research Institute to carry out dedicated surveys in the Indian Exclusive Economic Zone and the contiguous seas<sup>8</sup>. In view of the above, it is evident that during the past century, only stranding records of the blue whales are known, but for the observation by the fishermen in 2015 on the Maharashtra coast and the Konkan cetacean research team<sup>12</sup>. Moreover, there are no previous reports of live blue whales available from Gujarat waters. The present sighting suggests



**Figure 1.** Live blue whale sighted off Gujarat coast: *a*, Spouting; *b*, lateral view of falcate dorsal fin; *c*, showing flukes before diving.

that long-term systematic surveys would enable us to better understand these pre-historic creatures and their spatial distribution in Indian waters.

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